REMARKS

Claims 3, 5-24, 26-29, 35, and 36 have been amended for clarification purposes. Therefore, the amendments to the claims do not present new issues that would require further consideration and/or search. Claims 3, 5-29, 35, and 36 are pending in the case. Further examination and reconsideration of pending claims 3, 5-29, 35, and 36 are hereby respectfully requested.

Specification:

The Office Action states that "In previous office action, the examiner indicated that 'the substitute specification filed May 2, 2003 has not been entered because it does not conform to 37 CFR 1.125(b) and (c) since applicant does not filed a clean copy with markings.' However, applicant does not address this issue in the amendment filed on November 24, 2004." (Office Action – page 1.)

The Amendment filed in the present case on November 24, 2003 states on page 24 that "Applicant submits herewith a clean copy of the specification as amended, in compliance with 37 C.F.R. 1.125 (b) and (c). Applicant apologizes for the inadvertent omission of a clean copy from Applicant's previous response, wherein only a marked-up copy was supplied." Accordingly, Applicants have addressed the issue of the inadvertent omission of the clean copy of the specification in the amendment filed on November 24, 2003. As such, entry of the clean copy of the specification filed in the present case on November 24, 2003, and removal of the objections to the specification are respectfully requested.

Objections to the Claims:

Claims 3, 5, 10, and 22 were objected to because of informalities. Applicants have amended these claims to correct the informalities identified in the Office Action. It is also noted that the Office Action states that "Claim 10 is objected to because of the following informalities:... (2) 'another portion' in (ii) of step (a) should be changed since there is no phrase 'one portion' before 'another portion'." (Office Action -- page 3.) Applicants respectfully point out that claim 10 has been amended to change "another portion" to a "second portion" the corresponding "first portion" of which is recited in step (a)(i) of amended claim 10. Therefore, Applicant believes that the informalities in claim 10 identified by the Examiner have been corrected. Accordingly, removal of the objections to claims 3, 5, 10, and 22 is respectfully requested.

Section 112, second paragraph, Rejections:

Claims 3, 5-29, 35, and 36 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 3, 5-24, 26-29, 35, and 36 have been amended for clarification. It is also noted that the Office Action states that "Claim 20 is rejected as vague and indefinite since claim 10 and 20 does not correspond each other since the mixture in claim 10 comprises at least one set of free probe (ie., one set of free probe) while the mixture in claim 20 contains at least two set of free probes (ie., two set of free probes)." (Office Action -- page 7.) Applicant would like to respectfully point out that claim 20 has been amended to recite "the at least one subset of free probes comprises at least two subsets of free probes." Therefore, claim 20 limits the "at least one subset of free probes" recited in claim 10 by reciting that the at least one subset includes "at least two subsets of free probes." Applicant, therefore, respectfully submits that claim 20, as amended herein, is not vague and indefinite. Accordingly, removal of the § 112, second paragraph, rejections of claims 3, 5-29, 35, and 36 is respectfully requested.

Section 102 Rejections:

Claims 3, 5, 7, 9-27, 29, 35, and 36 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,355,431 to Chee et al. (hereinafter "Chee"). As will be set forth in more detail below, the § 102 rejections of claims 3, 5, 7, 9-27, 29, 35, and 36 are respectfully traversed.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. V. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987), MPEP § 2131. The cited art does not disclose all limitations of the currently pending claims, some distinctive limitations of which are set forth in more detail below.

The cited art does not teach contacting a sample suspected of containing one or more target nucleic acid sequences with one or more subsets of spectrally-addressable bound probes. Amended independent claim 3 recites in part: "contacting a sample suspected of containing one or more target nucleic acid sequences with one or more subsets of free probes and one or more subsets of spectrally-addressable bound probes." Amended independent claims 5 and 10 recite similar limitations.

Chee discloses detection of nucleic acid amplification reactions using bead arrays. Chee, however, does not disclose contacting a sample suspected of containing one or more target nucleic acid sequences with one or more subsets of spectrally-addressable bound probes. For example, Chee states that "An immobilized first OLA primer 45 is hybridized with a target sequence 25 and a second OLA primer 50." (Chee -- col. 6, lines 61-63.) As shown in FIGS. 7A and 7B of Chee, target sequence 25 is contacted with bound OLA primer 45. However, Chee does not teach that bound OLA primer 45 is spectrally-addressable. Therefore, Chee does not teach contacting target sequence 25 with a spectrally-addressable bound probe.

In another example, Chee states that "a target nucleic acid is added to a reaction mixture that comprises the necessary amplification components, and a modified primer is formed. In general, the modified primer comprises a detectable label, such as a fluorescent label, which is either incorporated by the enzyme or present on the original primer." (Chee -- col. 7, lines 28-33.) Therefore, Chee discloses that a target nucleic acid may be contacted with a primer that includes a detectable label. However, Chee does not teach that such a primer is bound. As such, Chee does not teach contacting the target nucleic acid with a spectrally-addressable bound probe.

In a further example, Chee states that "only one of the primers carries a detectable label, e.g. the first ligation probe, and the capture probe on the bead is substantially complementary to the other probe, e.g. the second ligation probe. In this way, unextended labeld [sic] ligation primers will not interfere with the assay" (Chee -- col. 18, lines 38-42.) Therefore, Chee discloses that one primer can carry a detectable label, but Chee does not teach that this primer is also bound. Instead, Chee teaches that a capture probe is used to immobilize the ligation product. However, Chee does not teach that the capture probe is spectrally addressable. As such, Chee teaches contacting a sample with probes that are either spectrally-addressable or bound, but Chee does not teach contacting a sample with probes that are spectrally-addressable and bound. Consequently, Chee does not teach contacting a sample suspected of containing one or more target nucleic acid sequences with one or more subsets of spectrally-addressable bound probes, as recited in claims 3, 5, and 10. Therefore, Chee does not teach all limitations of claims 3, 5, and 10.

For at least the aforementioned reasons, claims 3, 5, and 10 are not anticipated by the cited art. Therefore, claims dependent therefrom are also not anticipated by the cited art for at least the same reasons. Accordingly, removal of the § 102 rejections of claims 3, 5, 7, 9-27, 29, 35, and 36 is respectfully requested.

Section 103(a) Rejections:

Claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Chee in view of U.S. Patent No. 5,945,283 to Kwok et al. (hereinafter "Kwok"). Claims 8 and 28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chee in view of U.S. Patent No. 6,485,944 to Church et al. (hereinafter "Church"). As will be set forth in more detail below, the §103(a) rejections of claims 6, 8, and 28 are respectfully traversed.

To establish *prima facie* obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974), MPEP 2143.03. Obviousness cannot be established by combining or modifying the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion or incentive to do so. *In re Bond*, 910 F. 2d 81, 834, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990). The cited art does not teach or suggest all limitations of the currently pending claims, some distinctive limitations of which are set forth in more detail below.

The cited art does not teach or suggest contacting a sample suspected of containing one or more target nucleic acid sequences with one or more subsets of spectrally-addressable bound probes, as recited in claims 3, 5, and 10. As set forth in more detail above, Chee does not teach all limitations of claims 3, 5, and 10.

In addition, Chee does not suggest or provide motivation for all limitations of claims 3, 5, and 10. For example, Chee does not suggest the desirability of contacting a sample suspected of containing one or more target nucleic acid sequences with one or more subsets of spectrally-addressable bound probes. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). MPEP 2143.01. Therefore, even if Chee could be combined or modified to teach the limitations of the present claims, the resultant combinations or modifications are not obvious since the prior art does not suggest the desirability of such combinations or modifications.

In addition, Chee specifically cannot be combined with Kwok and/or Church to overcome the deficiencies therein. For example, Kwok discloses methods and kits for nucleic acid analysis using fluorescence resonance energy transfer. Kwok states that "The oligonucleotide ligation assay involves

hybridization of DNA sequence to two probes, one of which is labeled." (Kwok -- col. 1, lines 48-49.) Therefore, Kwok teaches contacting a DNA sequences with a labeled probe. However, Kwok does not teach that the labeled probe is also bound. Therefore, Kwok does not teach contacting a sample suspected of containing one or more target nucleic acid sequences with one or more subsets of spectrally-addressable bound probes, as recited in claims 3, 5, and 10. Consequently, Kwok does not teach all limitations of claims 3, 5, and 10 and cannot be combined with Chee to overcome deficiencies therein.

Church discloses replica amplification of nucleic acid arrays. Church states:

> The method further comprises...contacting a mixture of said first fluorescently labeled cDNA population and said second fluorescently labeled cDNA population with a member of said plurality of nucleic acid arrays under conditions which permit hybridization of said fluorescently labeled cDNA populations with nucleic acids immobilized on said members of said plurality of nucleic acid arrays and detecting the fluorescence of said first fluorescently labeled population of cDNA and the fluorescence of said second fluorescently labeled population of cDNA hybridized to said member of said plurality of nucleic acid arrays. (Church -- col. 2, lines 26-44.)

Therefore, Church discloses contacting fluorescently labeled cDNA populations with immobilized nucleic acids. However, Church does not disclose that the immobilized nucleic acids are spectrally-addressable prior to contact with the cDNA populations. Therefore, Church does not teach contacting a sample suspected of containing one or more target nucleic acid sequences with one or more subsets of spectrally-addressable bound probes, as recited in claims 3, 5, and 10. Consequently, Church does not teach all limitations of claims 3, 5, and 10 and cannot be combined with Chee and/or Kwok to overcome deficiencies therein.

Therefore, none of the cited art, either individually or in any combination thereof, teaches, suggests, or provides motivation for contacting a sample suspected of containing one or more target nucleic acid sequences with one or more subsets of spectrally-addressable bound probes, as recited in claims 3, 5, and 10. Consequently, the cited art does not teach, suggest, or provide motivation for all limitations of claims 3, 5, and 10.

For at least the reasons stated above, claims 3, 5, and 10 are patentably distinct over the cited art. Therefore, claims 6, 8, and 28, which are dependent therefrom, are also patentably distinct over the cited art for at least the same reasons. Accordingly, removal of the § 103(a) rejections of claims 6, 8, and 28 is respectfully requested.

CONCLUSION

This response constitutes a complete response to all issues raised in the Office Action mailed April 21, 2004. In view of the remarks traversing rejections presented therein, Applicants assert that pending claims 3, 5-29, 35, and 36 are in condition for allowance. If the Examiner has any questions, comments, or suggestions, the undersigned earnestly requests a telephone conference.

The Commissioner is authorized to charge any fees, which may be required, or credit any overpayment, to Conley Rose, P.C. Deposit Account No. 03-2769/5868-03401.

Respectfully submitted,

Ann Marie Mewherter
Reg. No. 50,484
Agent for Applicant(s)

Conley Rose, P.C.
P.O. Box 684908
Austin, TX 78768-4908
Ph: (512) 476-1400
Date: 7-21-04